REMARKS

Applicant respectfully requests reconsideration and allowance of the subject application. Claims 1-25 and 73-76 are pending in this application.

35 U.S.C. § 102

Claims 1-8, 10-12, 14-19, 21-23, and 73-75 stand rejected under 35 U.S.C. §102(e) as being unpatentable over U.S. Patent No. 6,801,937 to Novaes et al. (hereinafter "Novaes"). Applicant respectfully submits that claims 1-8, 10-12, 14-19, 21-23, and 73-75 are not anticipated by Novaes.

Novaes is directed to method, system and program products for defining nodes to a cluster (see Title). As discussed in the Abstract of Novaes, various components are provided to manage a clustered environment. These components include a System Registry that provides a global data storage; a Configuration manager that stores data locally on nodes of the clustered environment and globally within the System Registry; a Liveness component to provide status of communications paths of the cluster; a Group Services component that provides services to one or more other components of the clustered environment; and a Resource Management component that communicates with one or more resource controllers of the clustered environment.

With respect to claim 1, claim 1 recites:

> A multi-tiered management architecture comprising:
> an application development tier at which applications are developed for execution on one or more computers;
> an application operations tier at which execution of the applications is managed; and

a cluster operations tier to manage the operation of the computers without concern for what applications are executing on the one or more computers.

Applicant respectfully submits that no such multi-tiered management architecture is disclosed in Novaes.

In the September 7, 2005 Office Action, in response to Applicant's arguments filed 5/31/2005, it was asserted that:

> The Distributed Configuration manager of the prior art is responsible for the configuration of cluster (Col 5, lines 15-25) while the Group Service Component is responsible for managing application execution (Col 6, lines 19-30) (US 5,748,958 Col 3, lines 30-45). The separation between subsystems (tiers) is taught by prior art and is consistent with the specification of the application (Fig 4).

However, Applicant respectfully submits that Novaes still does not disclose the multi-tiered management architecture recited in claim 1.

Applicant respectfully submits that there is no disclosure in Novaes of a **cluster operations tier to manage the operation of the computers without concern for what applications are executing on the one or more computers** as recited in claim 1. The Distributed Configuration Manager of Novaes is utilized to configure the cluster system and to coordinate the synchronization of the cluster configuration databases (see, col. 5, lines 15-16), and is also responsible for starting the other cluster components with the appropriate cluster configuration and stop the other cluster components when appropriate (see, col. 5, lines 42-46). However, nowhere in the discussions of the Distributed Configuration Manager of Novaes is there any discussion or mention of a tier to **manage the operation of the computers without concern for what applications are executing on the computers**. As the Distributed Configuration Manager of Novaes is responsible for starting and stopping other cluster components, and each component executes

one or more corresponding processes on one or more nodes of the cluster (see, col. 5, lines 5-8), the Distributed Configuration Manager cannot disclose a tier to manage the operation of the computers without concern for what applications are executing on the one or more computers.

Accordingly, Applicant respectfully submits that Novaes cannot disclose a cluster operations tier to manage the operation of the computers without concern for what applications are executing on the one or more computers as recited in claim 1.

Furthermore, as discussed in the response filed May 31, 2005, although the Resource Management component of Novaes is cited as teaching the application development tier of claim 1, the Resource Management component of Novaes does not disclose an application development tier as recited in claim 1. As discussed in the response filed May 31, 2005, the Resource Management component of Novaes provides a basic communications layer to other cluster services, which are not part of the core cluster services (see, col. 6, lines 30-32). Applicant respectfully submits that a component that provides a basic communications layer to other cluster services does not disclose an application development tier at which applications are developed for execution on one or more computers. The Resource Management component of Novaes provides a basic communications layer, not a tier at which applications are developed. There is no discussion or mention in the cited portion of Novaes of applications being developed, much less a tier of an architecture at which applications are developed for execution on one or more computers. Accordingly, Applicant respectfully submits that Novaes cannot disclose an application development tier at which

applications are developed for execution on one or more computers as recited in claim 1.

For at least these reasons, Applicant respectfully submits that claim 1 is allowable over Novaes.

Given that claims 2, 4-8, and 10 depend from claim 1, Applicant respectfully submits that claims 2, 4-8, and 10 are likewise allowable over Novaes for at least the reasons discussed above with respect to claim 1.

With respect to claim 3, claim 3 depends from claim 1 and Applicant respectfully submits that claim 3 is allowable over Novaes at least because of its dependency on claim 1. Furthermore, claim 3 recites:

> A management architecture as recited in claim 2, wherein the application operations tier is responsible for securing sub-boundaries within the computer cluster boundary to restrict communication between computers within the computer cluster.

Applicant respectfully submits that Novaes does not disclose any such application operations tier responsible for securing sub-boundaries within the computer cluster boundary as recited in claim 3.

In the September 7, 2005 Office Action, Novaes at col. 6, lines 19-30, is cited as teaching claim 3 (see, September 7, 2005 Office Action at ¶ 2, p. 4). Applicant's arguments in the response filed May 31, 2005 pointing out why the cited portion of Novaes does not disclose the elements of claim 3 were not addressed in the September 7, 2005 Office Action. As discussed in the response filed May 31, 2005, the cited portion of Novaes discusses a Group Services component that provides generic membership services to the other components (see, col. 6, lines 19-20). Although the cited portion does mention that the Group Services component includes facilities with which the members of a group can

control membership to the group and maintain a group state (see, col. 6, lines 22-24), there is no discussion or mention in the cited portion of Novaes that a group of Novaes establishes a sub-boundary within a computer cluster boundary to restrict communication between computers within the computer cluster. Simply mentioning controlling membership to a group and a group state does not disclose securing sub-boundaries within the computer cluster boundary to restrict communication between computers within the computer cluster. Accordingly, Applicant respectfully submits that Novaes cannot disclose wherein the application operations tier is responsible for securing sub-boundaries within the computer cluster boundary to restrict communication between computers within the computer cluster as recited in claim 3.

For at least these reasons, Applicant respectfully submits that claim 3 is allowable over Novaes.

With respect to claim 11, claim 11 depends from claim 1 and Applicant respectfully submits that claim 11 is allowable over Novaes at least because of its dependency on claim 1. Furthermore, claim 11 recites:

> A management architecture as recited in claim 1, wherein the cluster operations tier takes corrective action in response to a hardware failure of one of the computers.

Applicant respectfully submits that no such cluster operations tier is disclosed in Novaes.

In the September 7, 2005 Office Action, Novaes at col. 6, lines 25-30 and col. 7, lines 55-65 is cited as teaching wherein the cluster operations tier takes corrective action in response to a hardware failure of one of the computers as recited in claim 11 (see, September 7, 2005 Office Action at ¶ 2, p. 5). These

cited portions of Novaes discuss a Group Services component that provides generic membership services to the other components (see, col. 6, lines 19-20). Applicant respectfully submits, however, that the cited portion of Novaes does not disclose the cluster operations tier as recited in claim 11. If the Group Services component of Novaes were to teach the cluster operations tier of claim 11, then, per the language of claim 1, the Group Services component would have to manage the operation of the computers without concern for what applications are executing on the one or more computers. However, in the September 7, 2005 Office Action at ¶ 2, p. 3, the Group Services component of Novaes is cited as disclosing the application operations tier at which execution of the applications is managed as recited in claim 1. Thus, in the rejection of claim 11, it is being asserted that the same Group Services component discloses both a tier at which execution of the applications is managed, and a tier to manage the operation of the computers without concern for what applications are executing on the one or more computers. Applicant respectfully submits that the single Group Services component cannot disclose both a tier at which execution of applications is managed, and a tier to manage the operation of the computers without concern for what applications are executing on the one or more computers. Accordingly, Applicant respectfully submits that Novaes cannot disclose an application operations tier and a cluster operations tier, wherein the cluster operations tier takes corrective action in response to a hardware failure of one of the computers as recited in claim 11.

For at least these reasons, Applicant respectfully submits that claim 11 is allowable over Novaes.

Given that claims 12 and 14 depend from claim 11, Applicant respectfully

submits that claims 12 and 14 are likewise allowable over Novaes for at least the

reasons discussed above with respect to claim 11.

With respect to claim 15, claim 15 recites:

> A co-location facility system comprising:
> a plurality of node clusters each corresponding to a different customer; and
> a cluster operations management console corresponding to at least one of the node clusters and configured to manage hardware operations of the at least one node cluster.

Applicant respectfully submits that no such co-location facility system is disclosed

in Novaes.

In the September 7, 2005 Office Action, Novaes at col. 4, lines 55-65 is

cited as teaching a plurality of node clusters each corresponding to a different

customer as recited in claim 15 (see, September 7, 2005 Office Action at ¶ 2, p. 6).

Applicant's arguments in the response filed May 31, 2005 pointing out why the

cited portion of Novaes does not disclose the elements of claim 15 were not

addressed in the September 7, 2005 Office Action. As discussed in the response

filed May 31, 2005, the cited portion of Novaes discusses cluster membership and

that cluster membership can be viewed as a list of nodes (see, col. 4, lines 54-55).

The cluster membership refers to the fact that a node is considered to be a member

of the cluster when it is defined and operational (see, col. 4, lines 44-47).

However, nowhere in this discussion of cluster membership is there any mention

of each of a plurality of node clusters corresponding to a different customer. In

fact, a search through Novaes for "customer" shows that "customer" does not

appear in this cited portion or anywhere else of Novaes. Without any such

discussion or even mention of node clusters corresponding to different customers, Applicant respectfully submits the Novaes cannot disclose a plurality of node clusters each corresponding to a different customer as recited in claim 15.

For at least these reasons, Applicant respectfully submits that claim 15 is allowable over Novaes.

Given that claims 16-19 and 21-23 depend from claim 15, Applicant respectfully submits that claims 16-19 and 21-23 are likewise allowable over Novaes for at least the reasons discussed above with respect to claim 15.

With respect to claim 25, claim 25 depends from claim 15 and Applicant respectfully submits that claim 25 is allowable over Novaes at least because of its dependency on claim 15. Furthermore, claim 25 recites:

> A system as recited in claim 15, wherein one or more of the nodes in a node cluster are leased by the customer from an operator of the co-location facility.

Applicant respectfully submits that no such leasing of one or more nodes in a node cluster is disclosed in Novaes.

In the September 7, 2005 Office Action, Novaes at col. 3, lines 35-50 is cited as teaching wherein one or more of the nodes in a node cluster are leased by the customer from an operator of the co-location facility as recited in claim 25 (see, September, 2005 Office Action at ¶ 2, p. 7). Applicant's arguments in the response filed May 31, 2005 pointing out why the cited portion of Novaes does not disclose the elements of claim 25 were not addressed in the September 7, 2005 Office Action. As discussed in the response filed May 31, 2005, the "negotiated" aspects of this portion of Novaes are relied on as teaching the lease aspects of claim 25. However, the cited portion of Novaes discusses that if resources are to

be shared, then the operating system copies negotiate the access such that the integrity of the resources is preserved (see, col. 3, lines 44-49). As an example, Novaes discusses that two copies of an operating system which need to write multiple blocks of data to a certain segment of a storage device negotiate the access to the segment, otherwise the order of the writing operations may compromise the integrity of the data being written (see, col. 3, lines 49-53).

Thus, it can be seen that the negotiation discussed in the cited portion of Novaes is directed to negotiation performed by the operating system copies in order to maintain the integrity of resources when those resources are shared. There is no discussion or mention in Novaes of nodes in the clustered environment being leased, much less of the nodes being leased by a customer from an operator of a co-location facility. Accordingly, Applicant respectfully submits that Novaes cannot disclose wherein one or more of the nodes in a node cluster are leased by the customer from an operator of the co-location facility as recited in claim 25.

For at least these reasons, Applicant respectfully submits that claim 25 is allowable over Novaes.

With respect to claim 73, claim 73 recites:

> A multi-tiered computer management architecture comprising:
> a first tier corresponding to an owner of a computer;
> a second tier corresponding to a hardware operator that is to manage hardware operations of the computer;
> a third tier corresponding to a software operator that is to manage software operations of the computer; and
> a fourth tier corresponding to the owner, wherein the owner operates in the fourth tier except when revoking the rights of the hardware operator or software operator.

Applicant respectfully submits that no such multi-tiered computer management architecture is disclosed in Novaes.

In the September 7, 2005 Office Action, in response to Applicant's arguments filed 5/31/2005, it was asserted that:

> The Distributed Configuration manager of the prior art is responsible for the configuration of cluster (Col 5, lines 15-25) while the Group Service Component is responsible for managing application execution (Col 6, lines 19-30) (US 5,748,958 Col 3, lines 30-45). The separation between subsystems (tiers) is taught by prior art and is consistent with the specification of the application (Fig 4).

However, Applicant respectfully submits that Novaes still does not disclose the multi-tiered computer management architecture recited in claim 73.

Applicant respectfully submits that there is no disclosure in Novaes of a fourth tier corresponding to an owner, wherein the owner operates in the fourth tier except when revoking the rights of the hardware operator or software operator. Nowhere in Novaes is there any discussion or mention of a four-tier management architecture with an owner operating in one of the tiers except when revoking the rights of a hardware operator or software operator. Without any such discussion or mention, Applicant respectfully submits that Novaes cannot disclose a fourth tier corresponding to the owner, wherein the owner operates in the fourth tier except when revoking the rights of the hardware operator or software operator as recited in claim 73.

Furthermore, in the September 7, 2005 Office Action, the Resource Manager process of Novaes is cited as teaching the fourth tier as recited in claim 73 (see, September 7, 2005 Office Action at ¶ 2, pp. 7-8). The Resource Management component of Novaes provides a basic communications layer to

other cluster services, which are not part of the core cluster services (see, col. 6, lines 30-32). Nowhere in Novaes is there any discussion or mention of an owner operating in this Resource Management component except when revoking the rights of the hardware operator or the software operator. Without any such discussion or mention, Applicant respectfully submits that the Resource Manager of Novaes cannot disclose a fourth tier corresponding to the owner, wherein the owner operates in the fourth tier except when revoking the rights of the hardware operator or software operator as recited in claim 73.

For at least these reasons, Applicant respectfully submits that claim 73 is allowable over Novaes.

Given that claims 74 and 75 depend from claim 73, Applicant respectfully submits that claims 74 and 75 are likewise allowable over Novaes for at least the reasons discussed above with respect to claim 73.

With respect to claim 76, claim 76 depends from claim 73 and Applicant respectfully submits that claim 76 is allowable over Novaes at least because of its dependency on claim 73. Furthermore, claim 76 recites:

> An architecture as recited in claim 73, further comprising using a plurality of key pairs, each key pair including a private key and a public key, to securely communicate between the computer and a management device corresponding to the hardware operator, as well as between the computer and a management device corresponding to the software operator.

Applicant respectfully submits that no such architecture is disclosed in Novaes. Applicant's arguments in the response filed May 31, 2005 pointing out why Novaes does not disclose the elements of claim 76 were not addressed in the September 7, 2005 Office Action.

As discussed in the response filed May 31, 2005, Applicant respectfully submits that Novaes includes no discussion or mention of a plurality of key pairs, much less of using the plurality of key pairs as recited in claim 76. Without any such discussion or mention, Applicant respectfully submits that Novaes cannot disclose the architecture of claim 76. Furthermore, although the September 7, 2005 Office Action asserts that Novaes teaches the architecture of claim 76 (see, September 7, 2005 Office Action at ¶ 2, pp. 8-9), there is no indication of where in Novaes the plurality of keys is allegedly disclosed. If this rejection is maintained, Applicant respectfully requests that the portion(s) of Novaes that are being relied on as disclosing the plurality of keys of claim 76 be identified.

For at least these reasons, Applicant respectfully submits that claim 76 is allowable over Novaes.

Applicant respectfully requests that the §102 rejections be withdrawn.

35 U.S.C. § 103

Claims 9 and 13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Novaes in view of U.S. Patent No. 6,801,937 to Hipp.

Applicant respectfully submits that this rejection of claims 9 and 13 is not clear because it is not clear what the "Hipp" reference is. The "Hipp" reference is cited as being U.S. Patent No. 6,801,937, but U.S. Patent No. 6,801, 937 is Novaes and does not list any inventor by the name of Hipp. Furthermore, the "Hipp" reference is cited as disclosing "sound an alarm", and Applicant has not been able to find such language at the cited portion of, or elsewhere in, U.S. Patent No. 6,801,937.

Although this deficiency in the rejection of claims 9 and 13 was identified in the response filed May 31, 2005, this deficiency has not been corrected. If this rejection of claims 9 and 13 is maintained, Applicant again respectfully requests that the rejection be clarified to identify the "Hipp" reference.

Claims 20 and 24 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Novaes in view of U.S. Patent No. 6,529,953 to Van Renesse (hereinafter "Van Renesse"). Applicant respectfully submits that claims 20 and 24 are not obvious over Novaes in view of Van Renesse.

With respect to claim 20, claim 20 depends from claim 19 and Applicant respectfully submits that claim 20 is allowable over Novaes at least because of its dependency on claim 19. Van Renesse is not cited as curing, and does not cure, the deficiencies of Novaes as discussed above with respect to claim 19. For at least these reasons, Applicant respectfully submits that claim 20 is allowable over Novaes in view of Van Renesse.

With respect to claim 24, claim 24 depends from claim 15 and Applicant respectfully submits that claim 24 is allowable over Novaes at least because of its dependency on claim 15. Van Renesse is not cited as curing, and does not cure, the deficiencies of Novaes as discussed above with respect to claim 15. For at least these reasons, Applicant respectfully submits that claim 24 is allowable over Novaes in view of Van Renesse.

Applicant respectfully requests that the §103 rejections be withdrawn.

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Conclusion

Claims 1-25 and 73-76 are in condition for allowance. Applicant respectfully requests reconsideration and issuance of the subject application. Should any matter in this case remain unresolved, the undersigned attorney respectfully requests a telephone conference with the Examiner to resolve any such outstanding matter.

Respectfully Submitted,

Date: _11/4/05_

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